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DISTINGUISHING RED AND WHITE OAK LUMBER BY CHEMICAL ANALYSIS OF THEIR ASH.

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Read before the Academy, at Topeka, January 1, 1903.

A FEW years ago the county surveyor of Atchison county appealed to the author of the following notes for information as to methods of distinguishing between red and white oak lumber. It seems that among his duties was the inspection of the lumber purchased by the county for bridge purposes, and, as the contracts called for white oak, he wanted to be sure that white oak lumber was being furnished, and not red oak, which usually rates in the market at two dollars less per thousand feet than white oak.

As is well known, the color of a freshly planed surface affords no reliable information as to the nature of the material, the white oak frequently being darker than the red. True, white oak is usually more closely grained than the red, but even this distinction may be deceptive in material from widely separated localities. Again, the white oak is usually heavier than the red, weighing forty-six pounds to the cubic foot, while the red weighs but forty-one pounds on the average. But, as may be readily seen, results as to weight will be greatly modified by the amount of seasoning, time of cutting, method of storing, etc.

It occurred to the writer that possibly a chemical analysis of the ashes of the several varieties might be of service in determining the kinds of lumber in question. Accordingly, a sample each of white, red, post and willow oaks was obtained from the Carlisle Lumber Company, of Atchison. The material was furnished direct from their mills in Arkansas, and represents results from one locality alone. The red and willow oaks are of the black oak tribe, the members of which require two years to perfect their fruit, while the white and post oaks belong to the annual-fruited division. The representatives of the black oaks gave a much higher percentage of ash than those of the white oaks, ranging over thirty-two-hundredths per cent. of the seasoned wood for the former, and less than twenty-hundredths per cent. for the latter. This difference was found mainly in the quantity of lime and potash present, the red oaks showing about twenty per cent. more of lime and five per cent. more of potash in the ashes than did the white oaks.

Bearing these considerations in mind, we should have here a sure method for distinguishing disputed samples of white and red oak.
